HANSEN CODES
For Stormwater Management As-builts

CODE	DESCRIPTION	RESULTS
DRASGENERAL01	Plan Views & Details	A minimum of two redlined As-built plans shall be submitted to Development Review. The redlined as-built contours and spot shots shall overlay the approved blue-line plans. All pertinent plan view and detail sheets are to be provided, including the Cover Sheet.
DRASGENERAL02	Backup Information	Pertinent information, such as the geotech report, concrete core samples, pictures, materials list, etc., is to be submitted.
DRASGENERAL03	Redlined Spot Shots	Redlined spot shots are to be provided to validate the contours shown on the plan.
DRASGENERAL04	Vicinity Map	A vicinity map is to be provided showing location of facility. Include the plan Cover Sheet.
DRASGENERAL05	Drainage & Conveyance	Verify that the drainage area that is required to drain to the stormwater facility is getting there – show spot shots, contours, etc.
DRASGENERAL06	SWM Computations	Provide rerun computations to assure that adequate storage and management has been provided. Show original design comps and as-built comps side-by-side.
DRASGENERAL07	Flow Splitter Information	Provide all pertinent information for flow splitter including plan view location, pipe types, weir elevations, inverts, etc.
DRASGENERAL08	Facility Materials	Verify facility materials by red check marks.
DRASGENERAL09	Inverts & Elevations	All facility inverts and elevations shall be verified.
DRASGENERAL10	Engineer's Certification	A signed As-built Certification required for all as-built plans: "I hereby certify that the facility shown on this plan was constructed in conformance with the signed improvement plans and as highlighted on the as-built plans provided." _____ Signature P.E. Number: _____ Date: _____
DRASGENERAL11	Recorded SWM Deeds	A copy of the recorded deed of easement and maintenance agreement for the stormwater facility is to be provided to Development Review.

DRASGENERAL12	Maintenance Responsibility	Up-to-date information is to be provided to Development Review concerning the maintenance responsibility of the stormwater management facility. This includes owners and/or maintainer's name, address and telephone number.
DRASGENERAL13	Materials Certification	All facility materials, including pond barrel and riser materials, core trench, anti-seep collars, biofilter soil mix, infiltration trench stone type & size, underdrain pipe size, plantings, etc., are to be certified by the engineer or a designated representative.
DRASPONDS01	MD ENG-14 Form	Complete the SCS Pond Summary Sheet for the as-built. Also include the post developed RCN and Time of Concentration from the TR-55 or TR-20 computation.
DRASPONDS02	Orifice & Weir Sizes	Verify all orifice and weir sizes with red check marks or with the corrected sizes.
DRASPONDS03	Embankment Elevation	Verify the top of embankment elevation.
DRASPONDS04	Emergency Spillway	Provide additional redlined information for the emergency spillway.
DRASPONDS05	Trash Rack & Anti-vortex	Verify the installation of the trash rack and/or anti-vortex device.
DRASINFILT01	Facility Dimensions	The length, width and depth of the facility is to be shown, in red, on the plans.
DRASINFILT02	Observation Well	Show the location of the observation well on the plans.
DRASINFILT03	Materials	Verify the materials used for the facility including the stone size, underdrain/observation well type and size, filter fabric and other pertinent materials.
DRASINFILT04	Stabilization	Verify the condition of the surrounding area around the trench and the contributing drainage area coming to the facility.
DRASINFILT05	Underdrain System	Verify the pipe size, type, perforation size & spacing, inverts, outfalls, orifice sizes, etc. for the facility underdrain.

DRASFILTERS01	Typical Sections	Provide typical cross sections a minimum of every 20 feet or as deemed necessary based on field conditions.
DRASFILTERS02	Check Dams	Verify the location, height, width and material type of the check dams.
DRASFILTERS03	Filter Materials	Verify the soils used in the filter system via random soil samples taken throughout the length of the facility.
DRASFILTERS04	Misc. Materials	Verify the type, size, location, perforation size, spacing and so forth for all materials used in facility.
DRASFILTERS05	Vegetation & Plantings	Verify that the plantings and vegetations shown on the approved plans have been provided and are in a living condition.
DRASFILTERS06	Stabilization	Verify that all contributing drainage areas are stable.
DRASOPENCHL01	Check Dams	Verify the location, height, width and material type of the check dams.
DRASOPENCHL02	Filter Materials	Verify the soils used in the filter system via random soil samples taken throughout the length of the system.
DRASOPENCHL03	Underdrain System	Verify the material type, size, perforation size and spacing, invert elevations and outfall location for the underdrain.
DRASOPENCHL04	Vegetation & Plantings	Verify that the plantings and vegetation shown on the approved plans have been provided and are in a living condition.
DRASOPENCHL05	Typical Sections	Provide typical cross sections a minimum of every 20 feet or as deemed necessary based on field conditions.
DRASNONSTR01	Grading and Slopes	Verify, using redlined spot shots, that the slope of the buffer strip or swale is in per approved plans.
DRASNONSTR02	Stabilization	Verify that the buffer strip or swale is well vegetated and in stable condition.
DRASSTRUCTL01	Flow Splitter Information	Provide all pertinent information for flow splitter including plan view location, pipe types, inverts and so forth.

DRASSTRUCTL02	Facility Materials	Verify the facility material types by red check marks.
DRASSTRUCTL03	Inverts and Elevations	Verify all facility inverts and elevations.
DRASSTRUCTL04	Orifice and Weir Sizes	Verify all orifice and weir sizes with red check marks or with the corrected sizes.
DRASSTRUCTL05	Structure Size	Verify all dimensions and lengths used for the facility.

POND AS-BUILT
MINIMUM REQUIRED INFORMATION

1. As-built contours shown in red on an approved blue print construction drawing with supporting surveyor spot shots.

2. Completed SCS-MD-378 Pond Summary Sheet (Eng. 14 Form) for the as-built and the post developed Runoff Curve Number (RCN) & Time of Concentration (Tc) for the pond contributing drainage area.

3. All supporting information for the as-built as shown on Page 15 of the Soil Conservation Service, Maryland, Standards and Specifications, Pond Code 378.

4. Horizontal and vertical datum.

5. A profile of the top of the dam.

6. A cross-section of the emergency spillway at the control section.

7. A profile along the principal spillway extending at least 100 feet downstream of the fill.

8. The elevation of the principal spillway crest.

9. The elevation of the principal spillway conduit (barrel) invert (inlet and outlet ends).

10. The diameter, length and type of material for the riser.

11. The diameter, length and type of material for the conduit (barrel).

12. The size and type of anti-vortex and trash rack device and its elevations in relation to the principal spillway crest.

13. The number, size and location of the anti-seep collars.

14. The diameter and size of any low stage orifices or drain pipes.

15. Notes and measurements to show that any special design features within the principal spillway have been met.

16. As-built certification on the red-lined plans.

17. Geotech report for the as-built construction. Geotech cover letter is to be sticky-backed to the as-builts. Those items being certified by the Geotech are to be red check marked with an asterisk placed beside the item to refer back to the Geotech report.

G-14
(Rev. 2-93)
Reference:
SCS-MD-378

U.S. Department of Agriculture
Soil Conservation Service
POND SUMMARY SHEET

Note: This form to be used for SCS Class "a" ponds only. Other ponds require permit from MD DNR, Water Resources Administration, Dam Safety Division.

PROJECT INFORMATION

Project Name: _____

SCD File No: _____

Pond No: _____

Maryland Coordinates (to nearest 1000 ft)
East _____
North _____
County _____
ADC Map/grid _____/_____

OWNER INFORMATION

Name: _____
Address: _____
_____
City: _____
State: _____ Zip: _____
PHONE: _____

TYPE OF POND: O Excavated
O Embankment
POST T_c: _____ O Both
Drainage Area: _____ acres
Surface Area: _____ acres
Normal Depth: _____ feet
Design Storm Frequency: _____ years
POST RCN: _____ Storage at Design High Water (DHW): _____ ac-ft

PURPOSE OF POND (check all that apply)

O Stormwater Mgmt. - Wet	O Sediment Cntrl	O Wetland Mitigation
O Stormwater Mgmt. - Dry	O Livestock	O Wildlife/Fish
O Infiltration/Water Quality	O Flood Control	O Fire Control
O Water Supply/Irrigation	O Recreation	O Other(specify):
O Sand & Gravel Wash Pond	O Borrow Material	_____

EMBANKMENT

Top Elevation:	_____ ft.	Max Fill Height:	_____ ft
Normal Pool Elevation:	_____ ft.	Top Width:	_____ ft
DHW Water Elevation:	_____ ft.	Side Slopes: U.S.	_____ :1
		D.S.	_____ :1

Will embankment serve as a public roadway? O Yes O No

PRINCIPAL SPILLWAY
Barrel Size: _____ inches Design Capacity at DHW: _____ cfs
O BCCMP O Alum O RCP O PVC O Cast-in-Place Box Culvert
O Weir O Channel O Other: _____

EMERGENCY SPILLWAY
Design Capacity at DHW: _____ cfs
Velocity: _____ ft/sec Bottom Width: _____ feet
Crest Elev: _____ ft Side Slopes: _____ :1
Spillway Protection: O Grass O Riprap O Gabions O Other _____

DISTANCES BELOW POND TO Property Line: _____ ft
Public Road: _____ ft

Soil Conservation District (Name): _____

District Manager Signature: _____ Date: _____

(The following line to be completed and form re-submitted after As-Built certification has been accepted by the District)

Date As-Builts Accepted: _____ _____
District Representative Signature

PARTIAL AS-BUILT
MINIMUM REQUIREMENTS

Effective November 1, 1996

Construction Check Data/As-Built:

The following information should be provided on all partial as-built submittals, in accordance with Section .07 As-Constructed or Record Survey.

- Horizontal and vertical datum.
- A profile of the top of the dam.
- A cross section of the emergency spillway at the control section.
- A profile along the centerline of the emergency spillway.
- A profile along the centerline of the principal spillway extending at least 100 feet downstream of the fill.
- The elevation of the principal spillway crest.
- The elevation of the principal spillway conduit invert (inlet and outlet).
- The diameter, length, and type of material for the riser.
- The diameter, length, and type of material for the conduit.
- The size and type of anti-vortex and trash rack device and its elevations in relation to the principal spillway crest.
- The number, size, and location of the anti-seep collars.
- The diameter and size of any low stage orifices or drain pipes.
- Notes and measurements to show that any special design features within the principal spillway have been met.
- Provide the signed partial as-built certification as follows:

  "I hereby certify that this facility, as shown and "as-built," meets or exceeds approved plan requirements and *Soil Conservation Service, Maryland Standard and Specifications for Ponds - 378*, for structural integrity to include the principal spillway, emergency spillway, embankment, and related components."

PARTIAL AS BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shown on the "as built" plans and principal spillway, emergency spillway, embankment and related parts meet the approved plans and specifications.

_____ PE No. _____

Signature

Date: _____

Certify means to state or declare a professional opinion based upon onsite inspections and material tests which are conducted during construction. The onsite inspections and material tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the engineer nor does an engineer's certification relieve any other party from meeting requirements imposed by contract, employment, or other means, including meeting commonly accepted industry practices.

WATER QUALITY FACILITY
AS – BUILT CHECKLIST

1. Location of water quality facility, shown in red, on an approved copy of the blue-lined construction drawings. Provide a minimum of two redlined copies of the as-built.

2. Provide redlined contours along with redlined spot shots on the plan view to show that the proper drainage area is making it to the stormwater facility.

3. Provide redlined spot shots to verify key elevations of the stormwater facility including orifice elevations, weir elevations, pipe inverts and so forth.

4. Provide redlined check marks to all pertinent facility devices; such as the low flow orifice size, trash rack installation, weir wall details, underdrains, etc.

5. Provide a recorded copy of the stormwater management deed of easement and maintenance agreement.

6. Provide an as-built certification on the redlined plans as shown below:

AS –BUILT CERTIFICATION

I hereby certify that the facility shown on this plan as being constructed in conformance with the signed improvement plans and as highlighted on the as-built plans provided.

_____ P.E. Number: _____

Signature Date: _____

WATER QUALITY DRY POND
AS – BUILT CHECKLIST

1. Location of water quality facility, shown in red, on an approved copy of the blue-lined construction drawings. Provide two red lined copies of as-built.

2. Provide red lined contours of the facility along with red lined spot shots to verify the elevations shown.

3. Provide red lined spot shots to verify the top of the embankment elevation.

4. Provide red lined check marks to all pertinent facility devices, such as the low flow orifice size, trash rack installation, weir wall details, underdrains, etc.

5. Provide spot shots and other pertinent information showing that the drainage from the site reaches the stormwater management facility.

6. Provide an as-built certification on the redlined plans:

AS BUILT CERTIFICATION

I hereby certify that the facility shown on this plan as constructed in conformance with the signed improvement plans and as highlighted on the as-built plans provided.

_____ P.E. Number: _____

Signature Date: _____

DRY SWALE
AS-BUILT CHECKLIST

1. Typical ditchline cross sections shown in red every 100 feet or as deemed necessary based on field conditions.

2. Verification, using red check marks or other, for the swale check dams.

3. Lab verification of the permeable filtering soil samples, taken randomly throughout the subdivision, used in the installation of the dry swales.

4. Provide an executed copy of the stormwater management deed of easement and maintenance agreement.

5. Provide an as-built certification on the redlined plans:

AS-BUILT CERTIFICATION

I hereby certify that the facilities shown on this plan are constructed in conformance with the signed improvement plans and as highlighted on the as-built plans provided.

_____ P.E. Number: _____

Signature Date: _____

BIORETENTION FACILITY
AS-BUILT CHECKLIST

1. Location of bioretention facility shown in red on an approved copy of blue lined construction drawings. Provide two redlined copies of as-built.

2. Provide red lined coutours of the facility along with red lined spot shots to verify the elevations shown.

3. Provide red lined spot shots to verify the top of embankment elevation.

4. Provide red check marks verifying the plant materials (in a living condition), planting material installation, location, size and type of underdrain (if any), etc.

5. Provide an executed copy of the stormwater management deed of easement and maintenance agreement.

6. Provide spot shots and other pertinent information showing that drainage from the site reaches the stormwater management facility.

7. Provide an as-built certification on the redlined plans:

AS BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed in conformance with the signed improvement plans and as highlighted on the as-built plans provided.

_____ P.E. Number: _____

Signature Date: _____

INFILTRATION TRENCH
AS-BUILT CHECKLIST

1. Location of infiltration trench shown in red on an approved copy of the blue lined construction drawing.

2. Length and width of trench shown in red on the approved copy of the blue lined construction drawing.

3. Depth of the trench, measured down the infiltration trench observation well, shown in red on the approved copy of the blue lined construction drawings.

4. Field condition of the surrounding trench stabilization and other miscellaneous pertinent information as observed in the field.

5. Provide an as-built certification on the redlined plans:

AS-BUILT CERTIFICATION

I hereby certify that the facilities shown on this plan are constructed in conformance with the signed improvements and as highlighted on the as-built plans provided.

_____ P.E. Number: _____

Signature Date: _____

NON-STRUCTURAL FACILITIES
AS – BUILT CHECKLIST

1. Provide two copies of the approved blue-lined construction drawings and highlight in red the stormwater management methodologies utilized.

2. Provide color photos of all pertinent stormwater related features from the site. Label/number each of the photos and show on the plan view where each photo was taken and in which direction the photo was taken.

3. Provide any and all pertinent backup information relating to the stormwater management features (i.e.: miscellaneous materials certifications, cross sections, etc.).

4. Provide an as-built certification on the redlined plans:

AS-BUILT CERTIFICATION

I hereby certify that the stormwater systems shown on this plan and in the photos have been constructed in conformance with the signed improvement plans and as highlighted on the as-built plans provided.

_____ P.E. Number: _____

Signature Date: _____

AS BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed in conformance with the signed improvement plans and as highlighted on the "as built" plans provided.

_____ P.E. Number: _____

Signature Date: _____